Message

From: Irwin, William [Irwin.William@epa.gov]
Sent: 4/15/2019 2:00:23 PM
To: Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]
CC: Beck, Nancy [Beck.Nancy@epa.gov]; Baptist, Erik [baptist.erik@epa.gov]
Subject: CFOS Monitoring Data
Attachments: Chlorpyrifos_DW RA_2011.pdf; Water Model Comparison With Monitoring Data_Winchell 2014.pdf

Hi Charlotte,

Thanks for the question, I will give you my perceptions of the water levels. I am attaching the drinking water assessment from 2011 with monitoring data. In the USDA PDP monitoring, they did not detect CFOS or the oxon in the finished drinking water. In the USGS monitoring with a very large sampling over 19 years (N=28,020 for CFOS), the maximum detected CFOS was 0.57 ppb and the maximum oxon was 0.0543 ppb--- during a high use period of time. It should be noted that CFOS use has been declining with time, so these numbers should be conservative for current uses peak DW levels. Based on the water modelling from when I was in OPP, the DW model numbers are far, far higher than the monitoring data and the models need to be re-trained to come close to the monitoring data. Comparing the Figure 11 water modelling for the oxon and the USGS monitoring data, the models are 2210 times higher for the oxon (120 ppb vs 0.0543 ppb oxon). The attached paper by Winchell points out that the OPP models are regularly over-predictive.

Table 20. USDA Pesticide Data Program Monitoring Data for Chlorpyrifos and Chlorpyrifos-oxon

Parameter	Chlorpyrifos		Chlorpyrifos-oxon	
Source	Raw Intake Water	Finished Drinking Water	Raw Intake Water	Finished Drinking Water
Sampling Years	2004-2009	2001-2009	2004-2007	2001-2007
Number of Samples	1178	2918	470	1492
Sample Frequency	bimonthly	bimonthly	bimonthly	bimonthly
Qualified Detections	0	0	0	0
Frequency of Detections	0	0	0	0
Maximum Detection	na	na	na	na
LOD	0.006 – 0.027 µg/L	0.006 – 0.027 µg/L	0.059 – 0.510 µg/L	0.012 – 0.510 µg/L

Table 18. USGS NAWQA Surface Water Monitoring Data for Chlorpyrifos and Chlorpyrifos-oxon.

Parameter	Chlorpyrifos	Chlorpyrifos-oxon
Sampling Years	1991-2010	1999-2010
Number of Samples	28020	5693
Sample Frequency	varied	varied
Qualified Detections	4132	19
Frequency of Detections	14.75%	0.33%
Maximum Detection	0.57 µg/L 2003 Las Vegas, NV (urban)	0.0543 µg/L 2008 Washington, MS (cropland)
LOD	0.004 – 0.5 µg/L	0.013 - 0.33 µg/L
HUC-8 Subbasins Reporting Detections	18 of 18	7 of 18

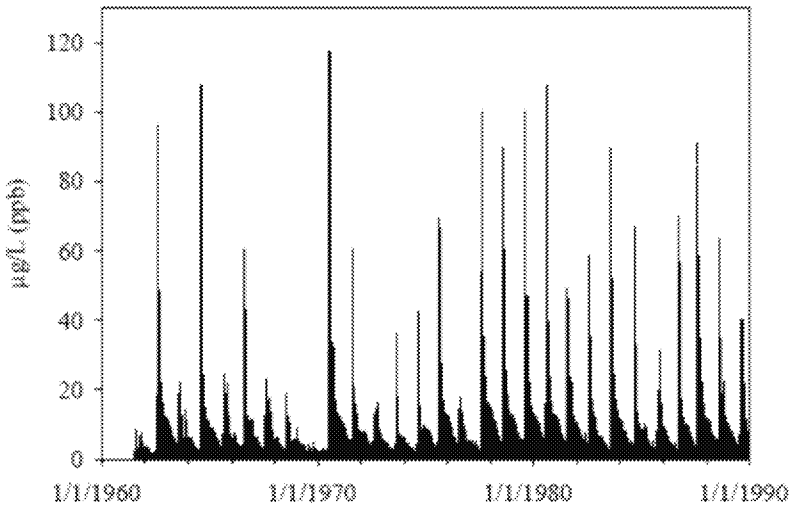

Figure 11. Times Series Data for Estimated Drinking Water Concentrations of Chlorpyrifos-oxon Over 30 Years

In the USGS Reservoir Monitoring Program, it mentions the phrase "finished water tap" on page 56, which some thought meant the faucet, but it seems that it meant the tap water at the exit of the water treatment plant. In any event, chlorpyrifos cannot enter the water distribution system after water treatment, so it is the same result. The oxon is so reactive that it seems very improbable that it would reach the homes after days of resonance in a holding tank and the levels in the home would be less than the exit of the water treatment plant. In some water modelling, the models predict water levels which exceed the solubility, even ground water, which is embarrassing. As someone with water treatment training, virtually all water is filtered, so the excuse of suspended particles binding chemicals in water after a treatment plant is not valid. There are laws regulating the water quality sent to homes. They seem to assume that people are so dumb that they would drink muddy water, which is false. For atrazine, the initial ground water models predicted levels of 15,000 ppb, which is a cloudy solution that no sane person would drink, the models seemingly assumed no or little soil binding or degradation.

Cheers,

William

-----Original Message-----
From: Bertrand, Charlotte
Sent: Saturday, April 13, 2019 7:27 AM
To: Irwin, William <Irwin.William@epa.gov>
Cc: Beck, Nancy <Beck.Nancy@epa.gov>; Baptist, Erik <Baptist.Erik@epa.gov>
Subject: Re: Chlorpyrifos SAP Talking Points

Thank you for this information. Your email mentions a faucet monitoring program, is that data OPP collected? I'm interested in learning more about it. Charlotte

Sent from my iPhone